Economics

National Radioactive Waste Management Amendment (Site Specification, Community Fund and Other Measures) Bill 2020 [Provisions] – 30 June 2020

ANSWER TO QUESTION ON NOTICE

Department of Defence

Topic: Senate Economics legislation committee - 06 July 2020 – Q7 - Fuel Storage - Brockman

Question reference number: 7

Senator/Member: Slade Brockman
Type of question: Written
Date set by the committee for the return of answer: 31 July 2020

Question:

1. What safety considerations are in place with respect to the location and design of Fuel Storage areas in relation to the risk of air crash and/or ordinance accidently disconnecting from an aircraft or unmanned aerial systems?
2. What is the buffer set around the Fuel Storage Area in respect to a worst case accident or interference (either air or other)?
3. Noting the 2002 Risk Assessment in the document "Impact on Australian Defence Organisation Operations of Locating the National Radioactive Waste Repository at Site 52A within the Woomera Prohibited Areas at Woomera. South Australia" Chapter 5.0 - in relation to weapon impact, how does this risk compare to the risk of like airborne assets striking the Fuel Storage Area?

Answer:

1. The location and design of fuel facilities is specified in Australian Standard 1940:2017 – *The Storage and Handling of Flammable and Combustible Liquids*.

All installations intended for the storage and handling of flammable or combustible liquids must be designed and constructed in a way which ensures the installation minimises risks and is safe and suitable for the conditions of use. The installation is to be in line with the Australian Standard with the following factors to be considered:

a. Site conditions such as topography, usage of adjoining areas or the risk of natural disasters eg flood, lightning strike
b. Avoidance of ignition sources
c. Separation of potential hazards including areas which cannot be controlled
   - Areas which cannot be controlled are those outside the fenced perimeter of the facility which are outside of Defence's control. For example a Fuel installation

needs to be far enough inside a fence line that a car accident just outside the fence line would not impact the installation even if the fence line was penetrated.

d. Spill control measures to avoid contamination of soil and water.

Fuel storage facilities are located outside the runway strip (at least 300m from the closest taxiway), and away from approach/departure paths. The ADF has strict procedures for flight over sensitive areas, with particular consideration for missions that conduct the carriage of ordnance. In the case of Fuel Storage Areas, the hierarchy of controls relating to physically separating the source of harm via separation distances during site selection significantly reduces the risk exposure. Further, coupled with regulatory requirements for the design, certification and management, ADF aircraft (including Unmanned Aircraft Systems) apply strict engineering controls to avoid accidental release of explosive ordnance. The safe carriage of ordinance is a requirement for regulatory certification of the aircraft.

Management of the risk of flight over or near sensitive areas is conducted by operational commanders and is subject to a range of considerations, including the type of flight being conducted and weather. Risks are reduced so far as reasonably practicable in accordance with the requirements of the Workplace Health and Safety Act. The effective management of risk is an integral part of all Defence activities and this includes the requirement to eliminate risks to health and safety so far as is reasonably practicable (SFARP). Given the risk controls in place, the risk of an ADF aircraft crashing or inadvertently dropping ordnance into Fuel Storage Areas is considered to be very low.

2. The location, design and separation of fuel facilities is specified in Australian Standard 1940:2017 – *The Storage and Handling of Flammable and Combustible Liquids*. Separation distances in this Standard are primarily driven by type and volume of fuel stored. Separation distance in fuel installations only refer to horizontal distance (not vertical) because of the fire behaviour versus explosion events.

For the Woomera aviation fuel storage, the separation distance between the fuel facility and office buildings, warehouses, process areas and workshops, must be greater than 12 metres. For the ground fuel facility, which stores petrol and diesel, the separation distance must be greater than three metres from the same type of facilities.

3. The risk associated with weapon impact to the National Radioactive Waste Management Facility on Site 52A in 2002 report is not directly comparable to the risk associated with like airborne assets striking the Fuel Storage Area at RAAF Base Woomera.

As identified in the 2002 report, “The negative publicity that would result from a weapon impact either on or in close proximity to the NRWR is viewed by Defence as a significant issue. In line with this, Defence has recommended that a weapon impact on the NRWR be classified as falling into the ‘disastrous’ category. Since the Aviation Risk Management Policy equates any consequence of “critical” or higher to that of a fatality (or multiple fatalities where the consequence is defined as “disastrous”) it is not unreasonable to apply the same probability thresholds for such consequences to that of a fatality. Using the ARPANSA guidance … the acceptable threshold for occurrence of such an event or consequence is 1 x 10-5 per annum. This means that Defence would potentially violate its own risk management policy if the NRWR was located within an area where the probability of a weapon impact was greater than 1 x 10-5 per annum and hence would be required to cease operations in the area.” There is also risk of indirect weapons impact through fragmentation which might result in undetected breaching of the facility and radioactive leakage.

The risk associated with like airborne assets striking the Fuel Storage Area is mitigated so far as reasonably practicable in accordance with Defence's Workplace Health and Safety obligations. Further, the consequence of a weapon impact on a National Radioactive Waste Management Facility is not the same as a like airborne asset striking the Fuel Storage Area. Assuming in both cases the impact of the vehicle results in a disastrous event, the impact at the Fuel Storage Area could be contained and remediated more rapidly and effectively than the impact at the National Radioactive Waste Management Facility.